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EXAMINER

LAMBRECHT, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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2611

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. _____	
	Examiner _____	Applicant(s) _____  Art Unit _____

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 23 February 2004.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-5 and 7 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-5 and 7 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All    b) ☐ Some \* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2, 5</u> .	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____.
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**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe (of record) in view of Davis (Davis et al., US005994965A).

With regard to claim 1, Abe discloses a cable modem tuner comprising an upstream circuit (200, pg. 4, ¶48) for transmitting a data signal to a CATV station (pg. 4, ¶48, lines 5-7), wherein said upstream circuit includes a variable-gain amplifying circuit (502, page 5, ¶69) receiving said data signal, and a control circuit for controlling said transmission/interruption of said data signal (206, page 4, ¶53). Abe fails to explicitly disclose a gain controllable gain control circuit, and at least one power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit.

In an analogous art, Davis discloses a variable-gain amplifying circuit (fig. 7) comprising a gain controllable gain control circuit (variable attenuator, 25, fig. 7) for receiving a data signal (from amplifier input 305 via coupler output 311), and a power amplifying circuit (high-power amplifier 330) power-amplifying the data signal having been gain controlled by said gain control circuit (RF output of variable attenuator 25 feeds the input of high-power amplifier 330, col. 9, lines 7-9), for the purpose of automatically maintaining a predetermined overall gain (col. 11, lines 25-41).

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Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe to include a gain controllable gain control circuit for receiving a data signal, and a power amplifying circuit power-amplifying the data signal having been gain controlled by said gain control circuit, for the purpose of automatically maintaining a predetermined overall gain in a cable modem upstream transmitter.

3. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vorenkamp (of record) in view of Shahar (Shahar et al., US006112232A) and Johannes.

With regard to claim 2, Vorenkamp discloses a cable modem tuner comprising a receiving unit for receiving a down signal from a CATV station (pg. 34, ¶404), wherein said receiving unit includes an up-converter (fig. 5, 506, 514, FIRST LO) for converting said down signal to a first intermediate frequency signal of higher frequency (pg. 7, ¶118), a filter for selecting the first intermediate frequency signal output from said up converter (BPF located between 514 & 516 in the signal path, fig. 5), and a down converter (516, 508, SECOND LO, 518, BPF located immediately after 518 in signal path, fig. 5) converting the first intermediate frequency signal selected by said filter to a second intermediate frequency signal of lower frequency for output (pg. 7, ¶118). Vorenkamp fails to explicitly disclose said filter is a SAW filter, and said SAW filter is formed of an oscillation circuit including a print coil or an air coil.

In an analogous art, Shahar discloses the use of a SAW filter, for the purpose of lowering cost (col. 9, lines 4-6).

Additionally, in an analogous art, Johannes discloses a SAW filter formed of an oscillation circuit (resonator) including a print coil (printed strip lines shown in fig. 1a), for the purpose of providing high stopband rejection (col. 1, lines 4-5).

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Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Vorenkamp to include a SAW filter, as taught by Shahar, for the purpose of lowering cost of hardware in a cable modem tuner.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Vorenkamp and Shahar to include a SAW filter formed of an oscillation circuit including a print coil, as taught by Johannes, for the purpose of providing high stopband rejection in a cable modem tuner.

With regard to claim 4, Vorenkamp, Shahar, and Johannes together disclose the cable modem tuner according to claim 2. In addition, Vorenkamp discloses said down converter includes a first intermediate frequency amplifying circuit (516, ¶121) amplifying the first intermediate frequency signal selected by said filter, a local oscillation circuit (SECOND LO, fig. 5) outputting a local oscillation signal having lower frequency than said first intermediate frequency signal (pg. 7, ¶118), a mixer circuit (508, ¶118) mixing the first intermediate frequency signal with said local oscillator signal and outputting a second intermediate frequency signal, a second intermediate frequency amplifying circuit (518, ¶121) amplifying the second intermediate frequency signal output from said mixer circuit, and a filter (BPF located immediate after 518 in the signal path, fig. 5) for selecting said second intermediate frequency signal output from said second intermediate frequency amplifying circuit.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vorenkamp, Sahar, and Johannes as applied to claim 4 above, and further in view of Birleson (US006725463B1).

With regard to claim 5, Vorenkamp, Shahar, and Johannes together disclose the cable modem tuner according to claim 4. Vorenkamp, Sahar, and Johannes fail to disclose a gain variable intermediate

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frequency gain amplifying circuit receiving the second intermediate frequency signal from said second intermediate frequency amplifying circuit.

In analogous art, Birleson discloses a dual conversion receiver comprising a gain variable intermediate frequency gain amplifying circuit (111, fig. 1) receiving a second intermediate frequency signal (output of mixer 104) from a second intermediate frequency amplifying circuit (107), for the purpose of providing gain adjustment for the automatic gain control circuit (col. 6, lines 23-31).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Vorenkamp, Sahar, and Johannes as applied to claim 4 to include a gain variable intermediate frequency gain amplifying circuit receiving a second intermediate frequency signal from a second intermediate frequency amplifying circuit, as taught by Birleson, for the purpose of providing gain adjustment for the automatic gain control circuit and achieving an appropriate signal level at the output of the frequency conversion circuitry.

5. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Vorenkamp, Shahar, and Johannes as applied to claim 2 above, and further in view of Tzuang (Tzuang et al., US005930696A).

With regard to claim 3, Vorenkamp, Shahar, and Johannes together disclose a cable modem tuner according to claim 2. In addition, Vorenkamp discloses said up converter (506, 514, FIRST LO) includes a local oscillator (FIRST LO) outputting a signal having higher frequency than said down signal (fig. 19, which is an illustration of receiver tuning of the present embodiment ¶31, shows a down or "RF" signal of 860MHz, and said local oscillator or "FIRST LO" outputting a signal having a frequency within the range of 1250-2060 MHz), and a mixer circuit (506) for mixing the down signal with the local oscillator signal. Vorenkamp does not disclose said up converter comprises a broadband high frequency amplifying circuit

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for amplifying said down signal and a broadband variable gain amplifying circuit receiving the down signal from said broadband high frequency amplifying circuit.

Tzuang discloses a broadband high frequency amplifying circuit (1) for amplifying said down signal, and a broadband variable gain amplifying circuit (4) receiving the down signal from said broadband high frequency amplifying circuit (col. 5 line 65 – col. 6, line 5), for the purpose of achieving low noise and low distortion characteristics (col. 9, lines 50-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Vorenkamp, Shahar, and Johannes to include a broadband high frequency amplifying circuit and a broadband variable gain amplifying circuit receiving the down signal from said broadband high frequency amplifying circuit, as taught by Tzuang, for the purpose of achieving low noise and low distortion characteristics in a cable modem tuner.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe in view of Vorenkamp, Shahar, and Johannes.

With regard to claim 7, Abe discloses a cable modem tuner including upstream circuit (200, pg. 4, ¶48) for transmitting a data signal to a CATV station and a receiving a down signal from said CATV station (pg. 4, ¶48, lines 5-7), comprising: a duplexer (201 & 101, pg. 4, ¶53, lines 16-17) for branching the data signal to said CATV station and the down signal from said CATV station; a return pass circuit (206, pg. 4, ¶53) outputting said data signal to said duplexer; and a receiving unit receiving the down signal branched by said duplexer (100, pg. 4, ¶48). Abe fails to disclose said receiving unit includes an up converter for converting said down signal to a first intermediate frequency signal of higher frequency, a SAW filter for selecting the first intermediate frequency signal output from said up converter, and a down converter converting the first intermediate frequency signal selected by said SAW filter to a second

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intermediate frequency signal of lower frequency for output, and said SAW filter is formed of an oscillation circuit including a print coil or an air core coil.

In an analogous art, Vorenkamp discloses a cable modem tuner comprising a receiving unit for receiving a down signal from a CATV station (pg. 34, ¶404), wherein said receiving unit includes an up-converter (fig. 5, 506, 514, FIRST LO) for converting said down signal to a first intermediate frequency signal of higher frequency (pg. 7, ¶118), a filter for selecting the first intermediate frequency signal output from said up converter (BPF located between 514 & 516 in the signal path, fig. 5), and a down converter (516, 508, SECOND LO, 518, BPF located immediately after 518 in signal path, fig. 5) converting the first intermediate frequency signal selected by said filter to a second intermediate frequency signal of lower frequency for output (pg. 7, ¶118), for the purpose of permitting selectivity, distortion, and stability to be controlled through frequency planning (¶118).

In addition, Shahar discloses the use of a SAW filter, for the purpose of lowering cost (col. 9, lines 4-6).

Furthermore, Johannes discloses a SAW filter formed of an oscillation circuit (resonator) including a print coil (shown in fig. 1a), for the purpose of providing high stopband rejection (col. 1, lines 4-5).

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe to include said receiving unit includes an up-converter for converting said down signal to a first intermediate frequency signal of higher frequency, a filter for selecting the first intermediate frequency signal output from said up converter, and a down converter converting the first intermediate frequency signal selected by said filter to a second intermediate frequency signal of lower frequency for output, as taught by Vorenkamp, for the purpose of permitting selectivity, distortion, and stability to be controlled through frequency planning.



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Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe and Vorenkamp to include a SAW filter, as taught by Shahar, for the purpose of lowering cost of hardware in a cable modem tuner.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Abe, Vorenkamp, and Shahar to include a SAW filter formed of an oscillation circuit including a print coil, as taught by Johannes, for the purpose of providing high stopband rejection in a cable modem tuner.

### *Response to Arguments*

7. Applicant's arguments with respect to claims 1-5, and 7 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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9. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

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Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Lambrecht whose telephone number is (703) 305-8710. The examiner can normally be reached from 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the primary examiner, Christopher Grant can be reached on (703) 305-4755. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Christopher M. Lambrecht  
Examiner  
Art Unit 2611

CML

  
CHRIS GRANT  
PRIMARY EXAMINER